improved significantly and the use of DES were shown to be cost-effective. The 6-month total medical cost for DES and BMS were similar.

PMD6

READMISSION RATES AND COSTS ASSOCIATED WITH FIBRIN SEALANT USE AMONG PATIENTS UNDERGOING ORTHOPEDIC SURGERY

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OBJECTIVES: Payers and hospital administrators are increasingly concerned about readmission rates in surgical patients. We sought to examine the readmission rates and hospital costs associated with EVICEL fibrin sealant (all-human formulation), versus VITAGEL fibrin sealant (with bovine thrombin), or no adjunct hemostat use for patients undergoing inpatient joint replacement surgeries. **METHODS:** A retrospective analysis was conducted using Premier administrative data from over 500 US hospitals. Hospitalized patients (≥18 years) who underwent orthopedic surgery and received EVICEL, VITAGEL or no hemostat during surgery between January 1, 2009 and November 30, 2009 were identified. A 1:1 (EVICEL:VITAGEL) and 1:3 (EVICEL: no hemostat) match was conducted using surgery type and propensity scores of receiving EVICEL, based on patient and hospital characteristics via a logistic regression model. The outcomes included 30-day all-cause readmission rates and total index hospital costs. Differences in readmission rates were analyzed using conditional logistic regression. A generalized linear model with log-link/gamma distribution was used for analyzing differences in total costs. **RESULTS:** A total of 316 patients were identified (158 per cohort) for the EVICEL versus VITAGEL and 1,808 patients for EVICEL (n=452) versus no hemostat (n=1,356) analysis. Patients in the VITAGEL cohort were 6.8 times more likely to be readmitted to the hospital compared to the EVICEL cohort (12.7% vs 3.8%; OR=6.81, 95%CI 1.62, 28.66). Patients in the no hemostat cohort were 1.6 times more likely to be readmitted compared to the EVICEL cohort. Total index hospital cost was lower for the EVICEL cohort ($16,704) compared to VITAGEL cohort ($18,192 p<0.001) on average. The EVICEL cohort ($17,387) had similar total costs compared to no adjunct hemostat ($17,389) cohort. **CONCLUSIONS:** Readmission presents significant costs and has been added to hospital quality measures. In this study, EVICEL was associated with lower readmission rates compared to VITAGEL or no adjunct hemostat use in inpatient joint replacement surgeries.

PMD7

DIFFERENCES IN OUTCOMES MEASURES OF DIABETES PATIENTS USING AN INSULIN DEVICE AND A CONVENTIONAL HUMAN INSULIN VIAL/SYRINGE

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OBJECTIVES: To compare the main outcomes differences including clinical events, health care utilization and costs of patients using an insulin device for diabetes versus patients using the conventional human insulin vial/syringe. **METHODS:** Using a retrospective analysis of health insurance claims data between the years 2003 and 2008, we identified patients with a diagnosis of diabetes and then divided them into an insulin device cohort and a human insulin vial/syringe cohort, based on their prescription fills. Patients' demographics, health care visits and costs were compared using Chi-square testing and standardized differences. The 12-month follow-up clinical event rates, health care facility use and costs for those patients were compared. Risk adjustment was performed using the propensity score matching method with the ProbChoice™ algorithm. **RESULTS:** A total of 12,400 eligible patients were identified as using insulin for diabetes: 1,236 (9.97%) received the insulin device and 11,164 (90.03%) received the insulin vial/syringe. Compared with patients who received the conventional human insulin vial/syringe, patients in the insulin device group were likely to be younger, live in the Midwest of the United States, and have type I diabetes. Although there were no significant differences in hypoglycemic events after risk adjustment, patients in the insulin device group had significantly fewer cases of cerebrovascular disease (4.14% vs. 9.12% p=0.0055), congestive heart failure (7.18% vs. 12.15% p=0.0267) and chronic obstructive pulmonary disease (4.70% vs. 10.50% p=0.0039), but more cases of dyslipidemia (68.51% vs. 54.42% p=0.0002). Although the outpatient costs for office visits ($1888 vs. $1895 p=0.0257) were lower for patients on the insulin device, their prescription costs ($5489 vs. $4635 p<0.0001) were higher. The overall risk-adjusted healthcare costs did not differ ($14,231 vs. $18,096 p=0.1160) between the two groups. **CONCLUSIONS:** Without significant addition to the costs, insulin administration with the device is associated with fewer clinical events.

PMD8

POSITRON EMISSION TOMOGRAPHY SCREENING FOR LUNG CANCER: A SYSTEMATIC REVIEW

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OBJECTIVES: There is no established effective lung cancer screening modality. Positron Emission Tomography (PET) is helpful in lung cancer disease extent evaluation. The objective of our study is to evaluate the role of PET in lung cancer screening via systematic review. **METHODS:** Using a strategy similar to a previous computed tomography (CT) lung cancer screening systematic review [Black et al. Thorax 2007;62:131–138], we searched for primary studies focusing on PET screening for lung cancer using the following keywords "(lung cancer) AND (positron emission tomography) AND ((screen) OR (screening))" in Pubmed® on Nov 30th, 2010. Two reviewers (Chien C.R. & Wang H.N) reviewed all the identified studies independently to find out studies compatible with our inclusion/exclusion criteria. Further discussion with 3rd reviewer (Kao C.H.) was taken to reach conclusion when there was any disagreement among the reviewers. Manual searching for relevant studies was also performed from the included studies. We restricted our analysis to non-overlapped studies published since 2000 and in English. **RESULTS:** Among the identified studies (n=2733), 239 studies were published before 2000, 2440 studies were excluded due to irrelevant titles and keywords, and another 34 studies were excluded after reviewing the abstracts. Full paper evaluation led to further exclusion of 11 studies, and manual search led to inclusion of 2 additional studies, leaving 11 studies for analysis. No studies evaluated the efficacy of primary PET screening specific for lung cancer. Eight studies focused on primary PET screening for cancer, and three studies reported finding in lung cancer CT screening programs with selective PET. **CONCLUSIONS:** The role of primary PET screening for lung cancer remains unknown. PET has the potential to be used as a screening modality not specific for lung cancer and as a selective modality in combination with CT for lung cancer screening. [1] Black et al. Thorax 2007; 62:131-138

PMD9

ESTIMATION OF QUALITY-ADJUSTED LIFE EXPECTANCY AND LOSS OF QUALITY-ADJUSTED LIFE EXPECTANCY IN PATIENTS UNDER PROLONGED MECHANICAL VENTILATION: A POPULATION-BASED STUDY DURING 1998-2007 IN TAIWAN

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OBJECTIVES: The quality-adjusted life expectancy (QALE) and loss of quality-adjusted life expectancy (loss of QALE) in patients under prolonged mechanical ventilation (PMV) stratified by different underlying diseases were determined. **METHODS:** A simple random sample of all 171, 635 patients who were performed continual mechanical ventilation for more than 21 days during the 1997-2007 periods in Taiwan left us 50,481 subjects. After stratifying the patients according to specific diagnoses, we performed latent class analysis (LCA) to categorize PMV patients with multiple comorbidities into several clustered groups. The survival functions were estimated for each group with Kaplan-Meier method and extrapolated to 300 months to obtain the life expectancies through a semi-parametric method. The results were adjusted with a utility measurement of quality of life to estimate the QALE (quality-adjusted life expectancies). Further, we compared the age-, gender-matched reference populations to calculate the loss of QALE. **RESULTS:** The QALE of PMV patients with chronic renal failure were 0.42 and 0.19 quality-adjusted life years (QALY) for consciousness clear versus unclear states, respectively; those of patients with cancer were 0.48 and 0.22, respectively; those of patients with Parkinson's disease were 0.62 and 0.27, respectively; those of patients with liver cirrhosis were 0.98 and 0.43 respectively; those of patients with stroke were1.03 and 0.46 respectively; those of patients with degenerative neurological diseases were 1.47and 0.64 respectively; those of patients with injuries and poisoning were1.81 and 0.78 respectively. The LCA classified cases with multiple comorbidities into several categories, of which there was a consistent trend of decrease in QALE and loss of QALE as people grow old. **CONCLUSIONS:** The results could hopefully reduce the gap between patients' families and health care providers and assist the clinical and health policy decisions.

PMD10

SCREENING TREATMENT AND CONTROL OF HYPERTENSION IN DIABETIC PATIENTS USING OUTPATIENT VISIT DATA

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OBJECTIVES: Blood pressure control is a great challenge in the diabetic patient population since the blood pressure target is lower, <130/80, as compared to <140/90 in general population. The objective of this study was to examine the rate and the association of patient characteristics (demographic, access to health care and clinical factors) and practice characteristics with hypertension screening, treatment and control in diabetic population. **METHODS:** National Ambulatory Medical Care Survey and the National Hospital Ambulatory Medical Care Survey 2006 were used to analyze outpatient visits made by adults18 years and older diagnosed with diabetes. Descriptive analysis was done to find the rate and binary logistic regression was carried out to find the predictors. Statistical significance was set at alpha of 0.05. **RESULTS:** Hypertension screening, treatment and control rate was 66.9%, 53.1% and 28.4% in diabetic patients. The odds of not getting screened were visits other than primary care physician (OR7.52), with no diagnostic tests (OR6.63), having no co morbidities (OR3.64), non obese (OR1.72) and increasing age (OR2.03, OR2.35, OR2.72). Odds of not being treated were settings located in south geographic region (OR1.29), provider other than primary care physician (OR2.02), hospital setting (OR1.28), no diagnostic tests (OR1.97) and having no co morbidities (OR1.558). Odds of not having blood pressure control were greater for black race (OR 1.75), patients with no past visits (OR 1.79), obese (OR 1.37) and having no co morbidities (OR 1.40). **CONCLUSIONS:** The study found that although more than 50% of the diabetic patients were screened and treated, blood pressure control was found in only one third of the population. Both the patient factors; demographic, access to health care, clinical factors and practice characteristics were responsible for poor quality of care (hypertension screening and treatment) and poor outcome (blood pressure control).

Medical Device/Diagnostics – Cost Studies

PMD11

IDENTIFYING POTENTIAL DRIVERS OF COST SAVINGS WITH INSULIN ADMINISTRATION DEVICES IN TYPE-2 DIABETES IN THE UNITED STATES

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OBJECTIVES: To investigate potential drivers of costs and cost savings when assessing the budget impact of insulin administration devices (IADs) in patients with type 2 diabetes (T2D). **METHODS:** A Microsoft Excel®-based model was constructed to assess the budget impact of new reusable IADs in patients with T2D. The model captured costs of insulin, IADs, needles, self-monitoring of blood glucose (test strips and glucometers) and the direct medical costs of a number of diabetes complications (minor and major hypoglycemia, myocardial infarction, stroke, end-stage renal disease, blindness and amputation). Scenarios were constructed to assess the budget impact of changes in hypoglycemia rates, compliance and insulin wastage associated with a new IAD. The analyses were performed in a one million member US healthcare plan from the payer perspective. Future costs were discounted at 3% per annum and sensitivity analyses were performed. **RESULTS:** In a million member plan with a diabetes prevalence of 7.8% and annual diabetes incidence of 0.52%, a hypothetical IAD capable of reducing hypoglycemia rates or insulin wastage was projected to decrease healthcare expenditure over one and five-year time horizons. Conversely, a hypothetical IAD capable of improving compliance resulted in increased healthcare expenditure, driven by increased insulin and needle costs. A device that conferred all of these benefits simultaneously was found to be cost saving in the target population, resulting in a 0.62% decrease in diabetes-related healthcare expenditure over five years. **CONCLUSIONS:** An IAD capable of reducing hypoglycemic event rates and insulin wastage whilst improving compliance would likely be cost saving overall.

PMD12

GENDER DIFFERENCES IN TOTAL KNEE ARTHROPLASTY (TKA) POSTOPERATIVE PAIN MANAGEMENT IN THE UNITED STATES

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OBJECTIVES: The objective of this analysis was to highlight the differences in gender pain management after a total knee arthroplasty in the United States. **METHODS:** We identified 103,600 TKA procedures from the Thomson Reuters MarketScan® Commercial and Medicare Claim databases from January 1, 2003 through June 30, 2009. For these procedures, we analyzed 873,237 pharmaceutical claims for muscle relaxants and analgesics/antipyretics for the 12-month postoperative period. The mean direct costs were calculated for each calendar year for gender cohorts and not inflation-adjusted. Wilcoxon-Mann-Whitney tests were run for each year to determine statistical significance among the gender cohorts. **RESULTS:** During the analysis period, we found statistically significant differences in pharmaceutical pain management spending between male and female cohorts. The female cohort spending averaged $464 per patient for the 12-month postoperative period compared to $364 for the male cohort. This represents a 27% difference. During this same period, the average number of pharmaceutical pain management claims per TKA decreased for all cohorts but these averages exhibited convergence in 2008 as spending by males increased slightly. **CONCLUSIONS:** Published studies have failed to agree on the correlation between gender and postoperative pain. A recent postoperative pain study concluded that "gender was not found to be a consistent predictor as traditionally believed©." However, our retrospective analysis of actual claim data provides a statistically significant correlation between female gender and increased consumption of postoperative muscle relaxants and analgesics for total knee arthroplasty procedures. These data may help surgeons provide appropriate postoperative care for their TKA patients. [1]Ip, Hui Yun Vivian, Et. al, Predictors of Postoperative Pain and Analgesic Consumption: A Qualitative Systematic Review, Anesthesiology, September 2009:11(3)657-677. MarketScan® is a trademark of Thomson Reuters (Healthcare) Inc.

PMD13

POST INGUINAL HERNIA REPAIR PAIN MANAGEMENT COSTS: A STUDY USING THE PREMIER PERSPECTIVE ™ DATABASE (PPD)

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OBJECTIVES: Several studies have reported on the ability to reduce post-operative pain following Inguinal Hernia repair by self-fixating mesh. Our study examines the overall cost increases when post operative pain following Inguinal Hernia Repair is significant enough to be reported by an ICD-9 diagnosis code. **METHODS:** The Premier Perspective™ Database (PPD) was used to track hospital costs associated with an outpatient Inguinal hernia repair between January, 2008 through June, 2010. ICD-9 diagnosis codes were used to further identify patient with the presence of acute or chronic post operative pain. For post discharge pain management strategies and costs we sponsored market research with 30 surgeons who perform Inguinal Hernia repair surgery. Responses were collected to specific pain management strategies employed, and average per patient costs when patient reported pain was mild, moderate, and severe. **RESULTS:** A total of 51,108 patients undergoing outpatient Inguinal Hernia repair were identified in the PPD during our study timeframe. An ICD-9 diagnostic code representing acute or chronic pain was present in 228 discharges. The mean cost per discharge for patients with diagnosis of acute/chronic pain was $3,309, compared to $2,910 for patients without the diagnostic of pain. Eighty percent of the physicians surveyed reported they would prescribe pain therapy with a cost of less than $ 100.00. For moderate pain the breakdown was 70% less than $100.00 and for severe pain 44% indicated the costs would be less than $100.00. **CONCLUSIONS:** The management of pain following Inguinal Hernia repair increase the pre- and post- discharge costs to the hospital, insurers and patients. In addition, costs appear to increase in relation to the severity of the pain reported. Inguinal hernia repair techniques which result in reduced post operative pain such as using self fixating mesh have the potential to reduce the costs associated with Inguinal Hernia repair.

PMD14

COMPARISON OF PER DISCHARGE COSTS OF THE REPAIR OF INCISIONAL/VENTRAL HERNIAS PERFORMED WITH PERMACOL™ AND STRATTICE™ IN THE UNITED STATES

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OBJECTIVES: Biologic graft implants are used in the repair of complex Incisional/Ventral hernias when in the surgeon's judgment the complexity of the hernia and/or the patient's risk factors indicate a biologic material provides an opportunity for better outcomes than repair performed with synthetic mesh materials. Our objective was to examine the average cost per discharge of Incisional/Ventral hernia repair when Permacol™ and Strattice™ biological meshes were used. **METHODS:** The Premier Perspective™ Database (PPD) was used to track hospital reported costs associated with patient stays for Incisional/Ventral hernia repair utilizing Permacol™ and Strattice™ in the 27 months from April, 2008 through June, 2010. PPD is the largest hospital-based, service-level comparative database in the USA providing detailed resource utilization and cost data categorized under a patients' principal and secondary procedure codes. ICD-9 procedure codes were used to identify patients with Incisional/Ventral hernia repair. **RESULTS:** A total of 36,105 patients with a primary procedure code for Incisional/Ventral hernia repair were identified between April, 2008 through June, 2010. Biologics were used in 4.2% of these patients. Permacol™ was used 135 patients and Strattice™ was used in 287 patients. There were no significant differences in patient's demographics between the two groups. Mean and median cost per discharge was lower for Permacol™ cases compared to Strattice™ ($19,221 vs. $22,428 for mean and $3,163 vs. $5,102 for median). Cost of "Central Supply" accounted for approximately 50% of the overall cost in both groups, while "Room and Board" accounted for approximately 22% of the overall cost. **CONCLUSIONS:** The mean cost of the biologic implant was reported as 42% higher when Strattice™ was used vs when Permacol™ was used ($6,596 vs. $4,659) in Incisional/Ventral hernia repairs. The mean overall discharge costs was 17% higher when Strattice™ was used vs Permacol™ ($22,428 vs. $19,221).

PMD15

ECONOMIC EVALUATION OF SELF-MONITORING OF BLOOD GLUCOSE REGIMES PLUS CONVENTIONAL PHARMACOLOGIC TREATMENT FOR TYPE-2 DIABETIC PATIENTS IN MEXICO: ESTIMATION BY DISCRETE EVENT SIMULATION

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OBJECTIVES: Estimate the yearly costs attributable to and resulting from the provision of different self-monitoring of blood glucose (SMBG) regimes *vs.* no SMBG in the treatment of patients with type-2 diabetes (T2D) from the Mexican public health system perspective. **METHODS:** The individual experience of a patient with T2D was simulated using a discrete event simulation built in Arena™. Patients were created with unique, randomly assigned clinical, epidemiologic and demographic baseline characteristics, cloned 3 times, and sent to each of the SMBG regimes considered (0, 1, 2 and 3 times daily). Clinical guidelines (ADA, ALAD) were used to determine diabetic- and complication-specific pharmacologic treatment, resource utilization and treatment algorithms & goals. Glycosilated hemoglobin (HbA_{1c}) was the main driver of disease progression, determining initial state, drug titulation/combinations and insulin dosage. Treatment therapies include lifestyle modifications alone, oral antidiabetics (OADs) and insulin use. Complication and acute event development for each SMBG regime was assessed through relative risks, taken from local published studies. All OADs and insulins were assumed to be equally effective in reducing HbA_{1c}. T2D-related complications and mortality were considered. All clinical and cost data were obtained from published literature. Simulation was run with 16,000 patients for 20 years using a 4.5% annual discount rate. Per-patient costs for selected years are shown in inflation-adjusted 2010 MXP. **RESULTS:** 1, 2 and 3 times daily SMBG regimes resulted in lesser costs than no SMBG after years 1, 3 and 4, respectively. Year 5 accumulated costs for the former were $114,099, $108,152 and $110,898, and $120,723 for no SMBG. **CONCLUSIONS:** SMBG adoption yields better mid- and long-run clinical and economic outcomes than no SMBG. Potential savings are due to fewer complications and slower disease progression. Healthcare institutions should adopt SMBG to control HbA_{1c} levels and reduce the social and economic burden T2D imposes.

PMD16

COMPARISON OF COST AND CLINICAL OUTCOMES OF OPEN VERSUS LAPAROSCOPIC THORACIC PROCEDURES IN THE UNITED STATES

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OBJECTIVES: Laparoscopic thoracic procedures have often been associated with shorter hospitalizations. However, the economic impact of laparoscopic thoracic procedures compared to open thoracic procedures have not been fully assessed. In this study, we examined the differences in cost and hospital length of stay for open versus laparoscopic thoracic procedures in the United States. **METHODS:** The Premier Perspective™ Database (PPD) was used to estimate the incidence and costs of laparoscopic versus open thoracic procedures in the United States. PPD is the largest hospital-based database in the USA providing detailed resource utilization and cost data. Patients with principal procedure codes for open or laparoscopic procedures between January 1, 2007 through December 31, 2009 were selected. Combinations of ICD-9 diagnosis codes and CPT procedure codes were used to identify surgical site infections, hemorrhage and blood transfusions. **RESULTS:** A total of 22,640 patients with a primary procedure code for thoracic procedures were iden-